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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,074	12/01/2003	Miwa Okumura	239200US2X	1746
22850	7590	11/17/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			YUN, JURIE	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/724,074	Applicant(s) OKUMURA ET AL.	
	Examiner Jurie Yun	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 9/22/05 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 22 are rejected under 35 U.S.C. 112, second paragraph. The numerous limitations reciting "configured to..." does not convey positive structural limitations but rather is regarded as a statement of intended use. With respect to "a collimator configured to...", what are the structural limitations of the collimator?

4. Claims 1 and 22 are rejected under 35 U.S.C. 112, second paragraph. The claims recite "second opening size" and "second scanning range", when there is no "first opening size" and no "first scanning range" claimed. Thus, it is unclear. Also, the meaning of "external data from the area external to the second scanning area" is not clear or defined. How much data is included in the area external to the second scanning area, and how is it obtained?

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobbs et al. (USPN 5,550,886) and further in view of Sugihara (USPN 6,341,152 B1).

7. With respect to claims 1 and 22, Dobbs et al. disclose an X-ray CT apparatus, comprising: an X-ray irradiation source (40) configured to irradiate X-rays to a volume of interest (30); an X-ray detector (50) including a plurality of detection element segments configured to detect the X-rays penetrated through the volume of interest; a collimator (60) configured to create an opening (62) that is movable at least in a slice direction and a channel direction (column 7, lines 47+); a controller (190) configured to set the opening of the collimator to a second opening size to irradiate a second scanning range corresponding to the portion of the volume data and configured to perform a second scan of the second scanning range.

Dobbs et al. do not specifically disclose an image processing part configured to generate volume data from the detected X-rays and to extract a portion of the volume data corresponding to the volume of interest, and a reconstruction part configured to reconstruct image data based on data collected by the second scan. Sugihara discloses an image processing part configured to generate volume data from the detected X-rays and to extract a portion of the volume data corresponding to the volume of interest (column 14, lines 36+), and a reconstruction part (Image Reconstruction Unit, 45) configured to reconstruct image data based on data collected by the scan. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an image processing part and a reconstruction part in the CT apparatus of

Dobbs et al., to enable imaging. The claims are rejected to the extent they are understood.

8. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobbs et al. (USPN 5,550,886) in view of Sugihara (USPN 6,341,152 B1) as applied to claim 1 above, and further in view of Andrews (USPN 6,778,636 B1).

9. With respect to claims 2, 3, and 6-8, Dobbs et al. do not disclose the at least one controller is configured to set the opening of the collimator to a first opening size that is wider than the second opening size and to perform a first scan, wherein the amount of the X-rays used on the first scan is lower than an amount of the X-rays used in the second scan. Andrews discloses this (column 2, lines 41+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the controller set the opening of the collimator to a first opening size that is wider than the second opening size and to perform a first scan, wherein the amount of the X-rays used on the first scan is lower than an amount of the X-rays used in the second scan, to minimize off-focal radiation, thereby insuring a high quality x-ray image, as taught by Andrews. Dobbs et al., Sugihara, and Andrews do not disclose the reconstruction part compensates external data of the second scanning range with data collected by the first scan, wherein the external data is collected during the second scan, and wherein the external data is collected based on an X-ray detected by detection element segments other than detection element segments used in the second scan. But this would be obvious. It would have been obvious to one of ordinary skill in the art at the time the

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invention was made to compensate external data of the second scanning range with data collected by the first scan, to make use of all information from both scans collected. Otherwise, it would be a waste of time and X-ray dosage.

10. With respect to claims 4 and 5, Dobbs et al., Sugihara, and Andrews do not disclose the first scan includes a helical scan, the second scan includes a helical scan, and a helical pitch of the second scan is shorter than a helical pitch of the first scan. However, helical scanning is well known in the art, and it would have been obvious to one of ordinary skill in the art to apply the collimator controller to a helical scanning CT apparatus, as this would also benefit from the minimization of off-focal radiation. The helical pitch of the second scan would be inherently shorter than a helical pitch of the first scan, since the first scan is wider than the second scan. Likewise, it would be inherent that the number of the plurality of detection element segments used in the second scan would be fewer than a number of the plurality of detection element segments used in the first scan, since the second scan is not as wide as the first scan.

Response to Arguments

11. Applicant's arguments filed 9/22/05 have been fully considered but they are not persuasive. With respect to the rejection under 35 U.S.C. 112, second paragraph, applicants argue that they did not intend to invoke 35 U.S.C. 112, sixth paragraph. However, the suggestion to use "means for" language to overcome the rejection was simply a suggestion which is not required. This rejection is maintained, not because "means for" language was not used, but because reciting "configured to..." does not

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convey positive structural limitations but rather is regarded as a statement of intended use.

With respect to the rejection of claims 1, 9-15, and 17-21 under 35 U.S.C. 103(a) as being unpatentable over Dobbs et al. (USPN 5,550,886), applicants argue that Dobbs et al. do not disclose the second scanning range receives an amount of X-ray greater than an area external to the second scanning range, and a reconstruction part configured to reconstruct image data based on data collected by the second scan, including data from the second scanning area and external data from the area external to the second scanning area. However, as cited above under the 35 U.S.C. 112, second paragraph rejections, this language is not clear. As stated above, the claims recite "second opening size" and "second scanning range", when there is no "first opening size" and no "first scanning range" claimed. Thus, it is unclear. Also, the meaning of "external data from the area external to the second scanning area" is not clear or defined. How much data is included in the area external to the second scanning area, and how is it obtained?

Applicant argues that Official Notice was taken in stating that the claimed features are obvious (image processing part and reconstruction part). It is noted that Official Notice **was not** taken. Examiner's position is based on art recognized essential imaging components of computer tomography systems. Nonetheless, Sugihara is used to teach these necessary components in CT systems.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

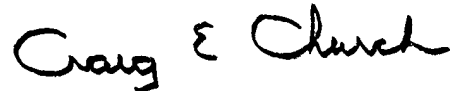
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jurie Yun
November 10, 2005



Craig E. Church
Primary Examiner